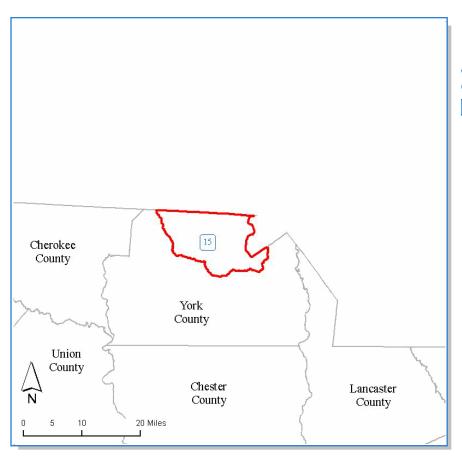
An Assessment of the Upper Catawba Subbasin

Hydrologic Unit Code (8 Digit): 03050101





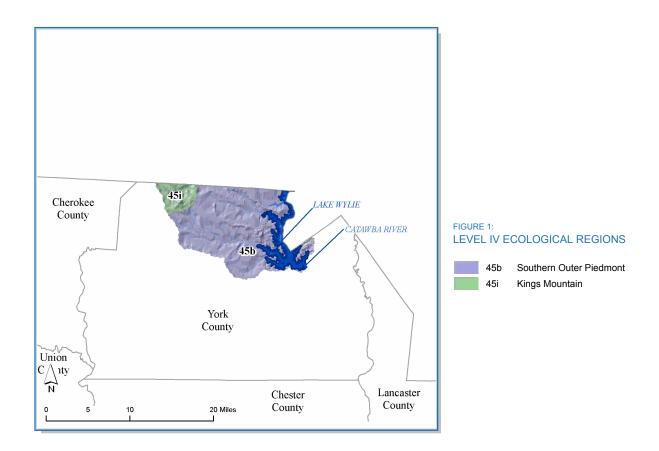
WATERSHED (10-digit HUC) (E.g., 01 = 0305010101)

15 Lake Wylie-Catawba River



Watershed Description

Only a small part of the Upper Catawba River subbasin (138 sq miles or 88,367 acres) extends into South Carolina. The Catawba River originates in the Blue Ridge mountains of North Carolina and enters South Carolina through Lake Wylie. The South Carolina portion of the subbasin lies to the west of Lake Wylie (Figure 1) and covers the Piedmont (45) ecoregion (Figure 1). A brief description of the Piedmont ecoregion is available in this document's appendix. A more detailed description of the Level III and Level IV Common Resource Areas (Ecological Regions) is available online (See Griffith *et al.* 2002 in References section.).



Land Use/Land Cover

The area is notable in that it is on the outskirts of Rock Hill, SC, and Charlotte, NC. In North Carolina, the subbasin is highly urbanized and is a major influence over natural resources in the subbasin. The farmland in the subbasin is primarily devoted to pasture and hayland.

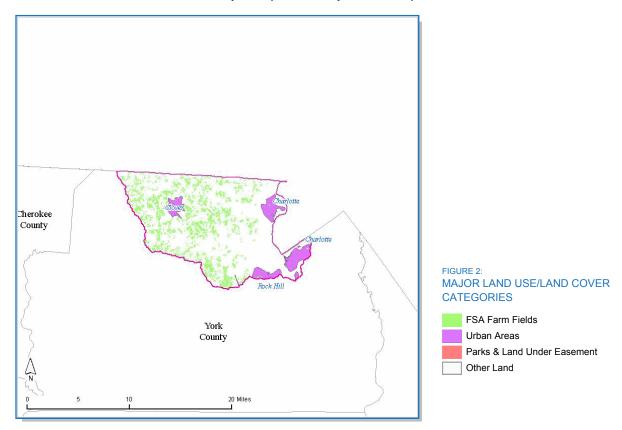


Table 1: MAJOR LAND USE/LAND COVER CATEGORIES

MAJOR LAND USE/LAND COVER CATEGORIES	Acres	% of Watershed
Watershed (Total)	88,367	-
Urban Area	6,893	8%
Parks/Land Under Easement (not NRCS)	4	0%
Farm Service Agency Designated Farm Fields	15,044	17%

Table 2:

AGRICULTURAL LAND USE: FSA ACREAGE AND ESTIMATED FARM FIELD USE FROM THE 2002 AG CENSUS (NASS Whole County Data Used. Cropland includes: Field Crops, Orchards, and Specialty Crops.)

County	FSA Fields (Acres)	% Pasture (Estimated)	% Cropland (Estimated)	% Hayland (Estimated)
York	15,044	39%	25%	36%

Summary of Resource Concerns

The following is a summary of resource concerns for the watershed. Each resource concern has a more detailed analysis provided in its corresponding section.

Soils

Land capability limitations are dominated by erosion in this subbasin that is typical of an area within the Piedmont. Highly erodible and potentially highly erodible soils comprise 88% of the subbasin and are the key resource concerns.

Water Quantity

Awaiting SCDNR's 2007 state water assessment.

Water Quality

Fecal coliform impairments.

Plant Condition

_

Fish, Wildlife, and Native Plants

According to SC DNR's "Comprehensive Wildlife Conservation Strategy: 2005 - 2010" (see SCDNR 2005 in References section), the following applies to this subbasin: Biologists have identified habitat protection as one of the most important actions to ensure the protection of South Carolina priority species. Loss and fragmentation of habitat have been identified as a major threat to many of the species listed as threatened and endangered in South Carolina.

Domestic Animals

Domestic livestock population will, however, be small relative to the human population in this subbasin.

Economic and Social Factors

Urban growth from the Charlotte and Rock Hill areas would impact numerous other resource concerns .

Progress on Conservation

Table 3:

A SUMMARY OF NRCS APPLIED CONSERVATION TREATMENTS (ACRES)

(See Appendix for NRCS Conservation Practices used for Conservation Treatment Categories.) (Applied practice data is reported on a fiscal year basis commencing on October 1st)

Conservation Treatments	2004	2005	2006	Total
Buffers and Filter Strips	-	-	1	1
Conservation Tillage	-	-	-	-
Erosion Control	-	-	0	0
Irrigation Water Management	-	-	-	-
Nutrient Management	-	1	89	90
Pest Management	-	-	90	90
Prescribed Grazing	-	93	-	93
Trees and Shrubs	-	-	1	1
Wetlands	-	-	-	-
Wildlife Habitat	-	-	-	-

Table 4:

LANDS REMOVED FROM PRODUCTION BY FARM BILL PROGRAMS (WHOLE COUNTY DATA SHOWN)

County	Conservation	Conservation	Grassland	Farmland & Ranch	Wetland
	Reserve Program	Reserve Program	Reserve Program	Protection Program	Reserve Program
	(ac) 2005	(ac) 1986 - 2005	(ac) 2005	(ac) 2005	(ac) 2005
York	924	24,924	-	-	-

Table 5

APPROVED TOTAL MAXIMUM DAILY LOAD (TMDL)

(See SCDHEC 2007 (a) in Reference Section.) - SCDHEC Contact: Matt Carswell - (803) 898-3609

TMDL Document	Number of Stations	Parameter of Concern	Status	WQMS ID Standard Attained
Allison Ck/ Calabash Br.	2	Fecal Coliform	Approved & Implementing	-
Beaverdam Creek	1	Fecal Coliform	Completed & Approved	-
Brown Creek	1	Fecal Coliform	Completed & Approved	-
Calabash Branch	1	Fecal Coliform	Completed & Approved	-

Table 6:

OTHER PLANS, ASSESSMENTS, AND PROJECTS IN THE WATERSHED

Organization	Description	Contact	Telephone
SCDHEC	Watershed Water Quality Assessment: Catawba	Carol Copeland	803-898-4203
	River Basin (2005)		

Other Watershed Considerations

Soils

The Upper Catawba subbasin lies entirely within the Piedmont and contains Kings Mountain and Southern Outer Piedmont subregions. Most of the land (87%) in this Piedmont subbasin has limitations due to erosion (Table 7). Most of the erosion is associated with sloping areas on uplands in the subbasin (Figure 4, Table 9). Low soil organic matter in the highly erodible soils is a soil health concern. Hydric soils and wetness are not major resource concerns in this subbasin with 95% of the land classified as not hydric (Figure 5, Tables 7 and 10). Almost all of the hydric and potentially hydric soils occur in riparian areas. Almost 40% of the land in the Upper Catawba subbasin is either prime farmland (22%) or statewide important farmland (16%) and occurs mostly in the South Outer Piedmont portion of the subbasin (Figure 3, Table 8).

Table 7: LAND CAPABILITY CLASSES (See NRCS 2007 [a] and [b] in References section.)

Percentages are based on the whole watershed (88,367 ac).

Land Capability Class 1	Acres	Percent
1 - Slight limitations	-	-

% Land by Subclass Limitation Wetness(w) Erosion (e) Droughtiness (s) Land Capability Classes 2-8 Acres Percent Acres Percent Acres Percent 2 - Moderate limitations 29% 1,863 2% 25,888 3 - Severe limitations 19,097 22% 1.850 2% 3 0% 4 - Very severe limitations 14,983 17% 456 1% 17% 6 - Severe limitations; unsuitable for cultivation; 15,226 limited to pasture, range, forest 7 - Very severe limitations; unsuitable for cultivation; 2.058 2% 34 0% limited to grazing; forest, wildlife habitat 0% 114 8 - Miscellaneous areas; limited to recreation, wildlife habitat, water supply

Prime Farmland

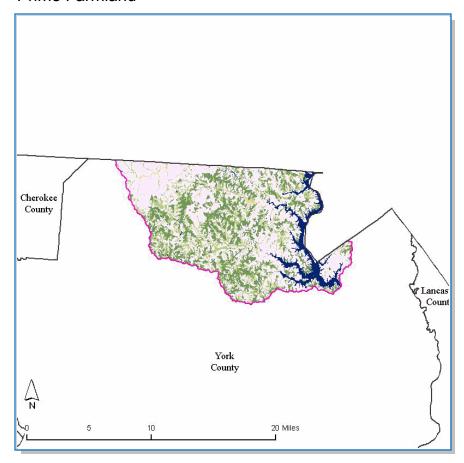


FIGURE 3: PRIME FARMLAND (See NRCS 2007 [a] and [b] in References section.)

Table 8: PRIME FARMLAND

Prime Farmland Categories	Acres	Percent of Land
All areas are prime farmland	19,628	22%
Farmland of statewide importance	14,076	16%
Not prime farmland	53,910	61%
Prime farmland if drained	0	0%
Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	395	0%
Prime farmland if irrigated	0	0%
Prime farmland if irrigated and drained	0	0%
Prime farmland if protected from flooding or not frequently flooded during the growing season	28	0%

Highly Erodible Land

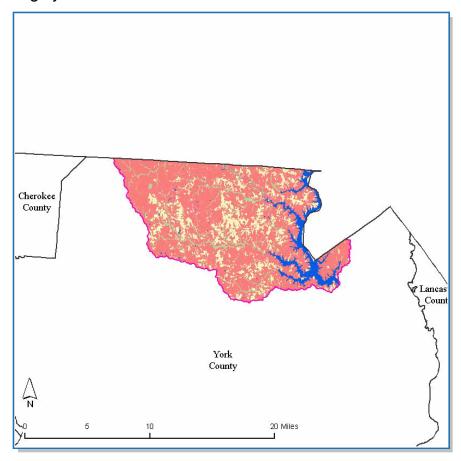


FIGURE 4: HIGHLY ERODIBLE LAND (See NRCS 2007 [a] and [b] in References section.)

Table 9: HIGHLY ERODIBLE LAND

Highly Erodible Land Categories	Acres	Percent of Watershed
Highly erodible land	63,360	72%
Not highly erodible land	4,501	5%
Potentially highly erodible land	14,310	16%

Hydric Soils

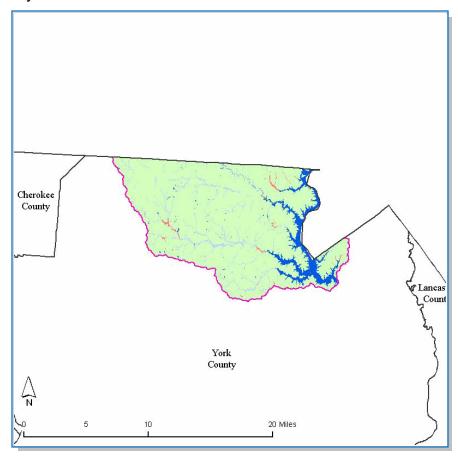


FIGURE 5: HYDRIC SOILS (See NRCS 2007 [a] and [b] in References section.)

Table 10: HYDRIC SOILS

Hydric Soils Categories	Acres	Percent of Watershed
All Hydric	513	1%
Not Hydric	83,718	95%
Partially Hydric	3,804	4%

Water Quantity

The Catawba River is under considerable pressure from upstream urban areas, such as Carrabus County and Charlotte, NC. This problem is compounded by droughts which are common in the summer.

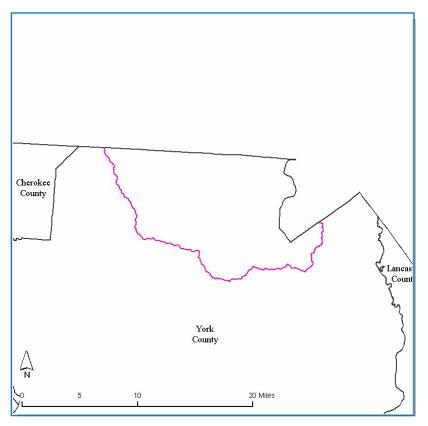


FIGURE 6: WATERSHED RELATIVE TO CAPACITY USE AREAS, NOTICE OF INTENT AREAS, AND CONES OF DEPRESSION

Table 11:
CAPACITY USE, NOTICE OF INTENT, AND CONES OF DEPRESSION AREA IN WATERSHED (See SCDHEC 2007 [c] and SCDNR 2004 in Refrerences Section.)

Area	Percent of Watershed
% Watershed in Cone of Depression and Capacity Use (CU) Area	0%
% Watershed in SCDHEC Capacity Use (CU) Area	0%
% Watershed in SCDHEC Notice of Intent (NOI) Area	0%

Water Quantity Cont.

Table 12: INDICATORS OF IRRIGATION WATER USAGE (WHOLE COUNTY DATA ARE USED) (See NASS 2002 and SCDNR 2004 in References Section)

County	Total Irrigated Water Used MGD	Total NASS Cropland (ac)	Cropland Under Irrigation (ac)	Percent Cropland Under Irrigation	Water Use Gal/Ac/Day for Irrigated Land
York	1.00	54,017	757	1.4	1,321
Cherokee County Union County N 5 10	York Coun	k	Lancas Count	STRUCTU Floc Mai Hyd	SISTED FLOOD CONTROL JRES IN WATERSHED od Control Structure in River Grography

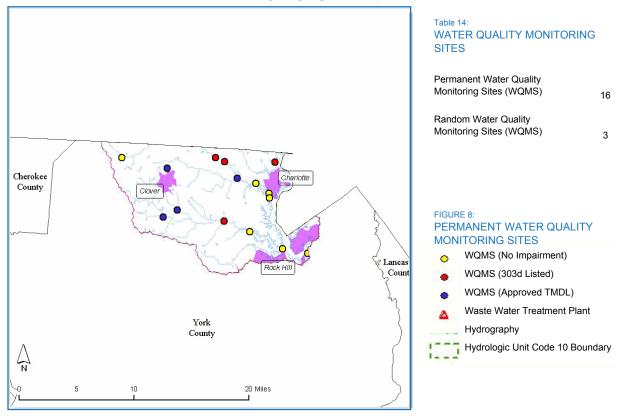
Table 13: NRCS IMPLEMENTED FLOOD CONTROL STRUCTURES

Number of Structures (in Watershed)	Maximum Storage (AcFt)	Number of Structures by Hazard Class				
		High	Low	Significant	Unclassified	
0	-	0	0	0	0	

Water Quality

The number of surface water quality impairments is shown in Table 15 resulting in a "303(d)" listing of that Water Quality Monitoring Site (WQMS). Table 5 indicates what progress has been made to address surface water quality through the Total Maximum Daily Load (TMDL) process. Once a TMDL plan is approved, the WQMS is removed from the 303(d) list even though the standard may not have been attained. Note that standards for total nitrogen, total phosphorus, and chlorophyll-a only exist for lakes; therefore, no stream in the state can be listed for any of these three parameters.

The fecal coliform concern will be addressed through ongoing TMDLs (Table 5).



NUMBER OF MONITORING SITES SHOWING SURFACE WATER QUALITY IMPAIRMENTS (See SCDHEC 2006 in References for the state 303(d) list.)

Recreational Use Standard		Fish Tissue Standa	ard	Shellfish Harvest S	Shellfish Harvest Standard	
Parameter	Impairments	Parameter	Impairments	Parameter	Impairments	
Fecal Coliform	1	Mercury	0	Fecal Coliform	NA	
		PCB's	0			
Aquatic Life Use	Standard					
Parameter	Impairments	Parameter	Impairments	Parameter	Impairments	
Biological	1	Dissolved Oxygen	0	Total Phosphorus	0	
Chlorophyll A	0	Ammonia Nitrogen	0	рH	0	
Oo. opy / (U	7 tillillorlia i vittogen	ŭ	P	-	
Chromium	0	Nickel	0	Turbidity	2	

Plant Condition

Plants of Economic Importance

Plants of economic importance are shown in Table 16. The crops shown in this table are from NASS data where the top five crops, by acres, in each county are displayed. The timber statistics (see Clemson Extension Forest Services 2003 in References) indicate the relative importance of the timber industry within the state and the importance of the timber industry compared to agriculture within the county.

The most prominent crops in the subbasin include sorghum for grain and forage.

Native Plant Species

According to SC DNR's "Comprehensive Wildlife Conservation Strategy: 2005 - 2010" (see SCDNR 2005 in References section), the following applies to this subbasin: the Piedmont ecoregion plant community historically consisted of oak and hickory-dominated forest with associated tree species varying by slope and soil moisture. This was the primary potential vegetation type in the Piedmont. Due to land disturbances however, today the majority of these sites exist mostly in closed canopy pine-dominated forests.

Table 16:
WHOLE COUNTY DATA OF PLANTS OF ECONOMIC IMPORTANCE IN SUBBASIN
(See: USDA NASS 2002 & Clemson University Forest Extension Services 2003 in References section)

Plant	Counties
All Cotton	York
All Wheat for grain	York
Forage - land used for all hay and haylage, grass silage, and greenchop	York
Short-rotation woody crops	York
Sorghum for grain	York

Table 17:
FEDERALLY LISTED THREATENED AND ENDANGERED PLANT SPECIES IN WATERSHED (See USFW 2006 in References section.)

Common Name	Latin Name	Status
Georgia aster	Aster georgianus	Supported Proposals to List
Little amphianthus	Amphianthus pusillus	Threatened
Schweinitz's sunflower	Helianthus schweinitzii	Endangered
Dwarf-flowered heartleaf	Hexastylis naniflora	Threatened

Fish and Wildlife

For additional information, the SC Department of Natural Resources has completed a "Comprehensive Wildlife Conservation Strategy: 2005 - 2010" (see SCDNR 2005 in References section).

In 2005, mercury advisories were issued for 57 water bodies in South Carolina. Higher concentrations of mercury in fish tissue tend to occur in the Coastal Plain of South Carolina with relatively lower concentrations (and therefore fewer advisories) in the Piedmont. For more details on fish advisories, please refer to the SCDHEC fish advisory website at: http://www.scdhec.gov/environment/water/fish/

Table 18:
FEDERALLY LISTED THREATENED AND ENDANGERED WILDLIFE SPECIES IN WATERSHED (See USFW 2006 in References section.)

Common Name Latin Name Status

Table 19:
FEDERALLY LISTED THREATENED AND ENDANGERED AQUATIC SPECIES IN WATERSHED (See USFW 2006 in References section.)

Common NameLatin NameStatusCarolina heelsplitterLasmigona decorataEndangered

280

16

1,224

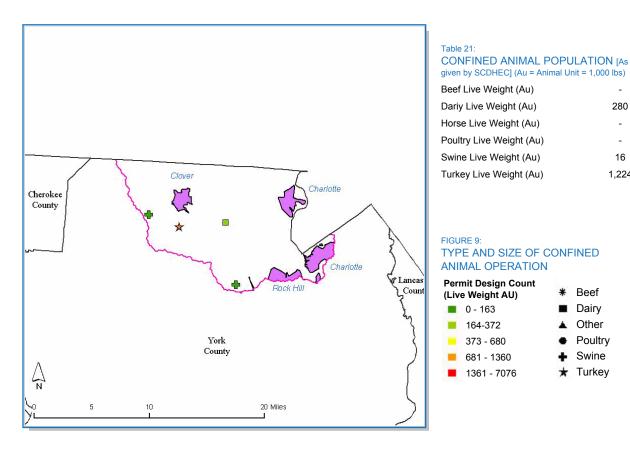
RESOURCE CONCERNS

Domestic Animals

This is a small subbasin and little can be inferred from countywide data on grazing livestock. Domestic livestock population will, however, be small relative to the human population in this subbasin.

WHOLE COUNTY GRAZING ANIMAL POPULATION DATA FROM 2002 AG. CENSUS (See NASS 2002 in References section. "D" in table = "Cannot be disclosed".)

		Grazing/Forage	County Rank in	
County	Cows/Calves	(ac)	State	
York	19,211	20,958	5	



ECONOMIC & SOCIAL FACTORS

The number of full-time farmers is similar to the state average of 47% and farm sizes are *smaller* than the state average of 197 ac (Table 22), suggesting below-average levels of participation in conservation programs in the subbasin. Farm sizes *decreased* by an estimated 13 % between 1997 and 2002, the same as the state average for the same period. Loss of cropland between 1997 and 2002 is estimated at 4%, lower than the SC average of 8%.



The relative importance of crop and livestock commodity groups in the watershed is shown in Tables 24 and 25; a *qualitative* indication of the relative importance of timber is provided on Table 16.

For more economic and farm information from the 2002 Agricultural Census, more detailed reports for all South Carolina counties can be found at:

http://www.nass.usda.gov/census/census02/profiles/sc/index.htm

Table 22: 2002 FARM CENSUS DATA (WHOLE COUNTY DATA SHOWN) (SC average farm size = 197 ac)

	Total Number of	% Full Time	% Farms	Average Farm	
County	Farms	Farmers	> 180 (ac)	Size (ac)	
York	858	45%	19%	139	
Weighted Avg*	858	45%	19%	139	

Table 23: 2002 FARM CENSUS ECONOMIC DATA (WHOLE COUNTY DATA SHOWN) (Results in \$1,000)

County	Market Value of Ag Products Sold	Market Value of Crops Sold	Market Value of Livestock, Poultry, and Their Products	Farms with sales < \$10,000
York	82,873	-	-	-
Weighted Avg*	82,873			



Table 24:

VALUE OF CROP COMMODITY GROUPS - COUNTY RANK IN STATE
(See NASS 2002 in References section. "D" in table = "Cannot be disclosed".)

County	Value of All Crops	Grains & Oilseeds	Tobacco	All Cotton	Vegetables & Melons	Fruits, Nuts, & Berries	Nursery, Etc.	Christmas Trees & Woody Crops	Hay & other Crops
York	(D)	31	-	23	(D)	(D)	(D)	4	10

Table 25: VALUE OF LIVESTOCK AND POULTRY COMMODITY GROUPS - RANK IN STATE (See NASS 2002 in References section. "D" in table = "Cannot be disclosed".)

	Value of						
County	Livestock, poultry	Poultry, Eggs	Cattle & Calves	Milk & Dairy	Hogs & Pigs	Sheep & Goats	Horses, etc.
York	(D)	(D)	5	7	(D)	5	8

^{*} Weighted averages are estimated based on agricultural land use area.

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APPENDIX

Level III Common Resource Area (Ecological Region) Descriptions

Piedmont (45)

Wildlife Habitat

The Piedmont is an erosional terrain with some hills; the soils are generally finer-textured than those found in coastal plain regions with less sand and more clay. Piedmont soils are moderately to severely eroded; most of this region is now in planted pine or has reverted to successional pine and hardwood woodlands, with some pasture; spreading urban- and suburbanization is apparent. The Piedmont of South Carolina is divided into five level IV ecoregions: Southern Inner Piedmont (45a), Southern Outer Piedmont (45b), Carolina Slate Belt (45c), Triassic Basins (45g) and Kings Mountain (45i).

NRCS Conservation Practices used for Conservation Treatment Categories in Table 3

Report Category **Practice Codes** 332, 391, 393, 412 Buffer and Filter Strips Conservation Tillage 324, 329, 329A, 329B, 344, 484 Erosion Control 327, 328, 330, 340, 342, 561, 585, 586 441, 449 Irrigation Water Management Nutrient Management 590 595 Pest Management Prescribed Grazing 528, 528A 490, 612, 655, 656, 66 Trees and Shrubs Wetlands 657, 658, 659

644, 645

Hydrologic Unit Numbering System

In 2005, the NRCS in cooperation with the U.S. Geological Survey, the South Carolina Department of Health and Environmental Control, and the U.S. Forest Service updated the South Carolina part of the USGS standard hydrologic unit map series. The report, "Development of a 10- and 12- Digit Hydrologic Unit Code Numbering System for South Carolina, 2005", describes and defines those efforts. The following is from the Abstract contained in that report: "A hydrologic unit map showing the subbasins, watersheds, and subwatersheds of South Carolina was developed to represent 8-, 10-, and 12-digit hydrologic unit codes, respectively. The 10- and 12-digit hydrologic unit codes replace the 11- and 14-digit hydrologic unit codes developed in a previous investigation. Additionally, substantial changes were made to the 8-digit subbasins in the South Carolina Coastal Plain. These modifications include the creation of four new subbasins and the renumbering of existing subbasins." The report may be obtained at

http://www.sc.nrcs.usda.gov/technical/HUC report.pdf. See Table 2 in the report for a cross-reference of old to new 8-digit HUC.

This subbasin profile uses the new HUC 8 numbering system with its modified and newly created subbasins. The NRCS reports implemented practices by 8-digit Hydrologic Unit Code. All NRCS reported Conservation Practices were reported using the older numbering system. 2005 and 2006 data were converted to the new HUC 8 numbering system through the Latitude and Longitude data reported with the applied practice. The use of these differing numbering systems has resulted in some NRCS implemented practices being credited in this report to an 8-digit HUC as reported by the NRCS but not correctly credited in the new numbering system. Likewise, the newly created 8-digit HUC will not be credited with the 2004 applied practices.